Internship report.

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Foto: Bart van Overbeeke, TU/e GLOW 2016

1) summary.

This report is a description of my internship at the Intelligent Lighting Institute TU/e, where I participated in the realisation process of two light art installations: 'Intermedia' and 'A.R.T' build for the festival GLOW 2016. My main activities were project managing tasks of intermedia and more diverse design activities in the team of A.R.T. These activities enabled me to test my abilities as a designer and develop my strengths, as well as to develop design skills that I felt were lacking behind in my previous semesters. Thereby this internship has boosted my professional identity and helped me define a more specific vision on design.

Foto: Pieter Nuij

2) table of contents.

3) introduction.

My journey to this internship went a bit different than usual internship vacancies. It was a happy coincidence of having done the right student project at the right moment, and have the ambitions and spare semesters to do an extra-curricular project: Intermedia

The project Intermedia stems from a student project within the TU/e bachelor college course 'Secret Life of Light'. It was initiated as a collaboration between ILI, the Van Abbe museum and artist Roland Schimmel, coached by Yvonne de Kort, Mariëlle Aarts and Philip Ross. Afterwards, a student team of 10 students continued Intermedia's development for Glow under Ross' supervision.

I have been part of this project since the very beginning. It started as an experimental design project, designing an art installation around the theme of perception. After eight weeks we created the convincing prototype of the installation 'Virtual self', an interactive installation build for an individual experience. The student team got the opportunity to develop the installation further for another eight weeks in a larger student team (7 students), reinventing the concept for a bigger crowd and make the concept fit for the festival GLOW 2016. This is where 'intermedia' was born.

At this time I was eager to continue the project on a more full time schedule and together with my project coach Philip Ross, I looked into the possibilities to continue the project within my studies. The most fitting option was to start an internship at the Intelligent Lighting Institute TU/e. this position was not a predefined vacancy, but a customized internship, composed of the development om my own project and design activities that gave me the opportunity to develop my learning goals. Therefore my internship fitted me perfectly.

I would therefore describe my internship as the following: Designing and realizing art installations for GLOW 2016, a customized internship at Intelligent Lighting Institute TU/e.

At the time of this internship, I also chose to became a member of the 52nd board of ESMG Quadrivium, the classical music student assosiation of Eindhoven. I will not elaborate on this topic in this report, but you will find it in my reflections, as it also took a big part of my life during this internship.
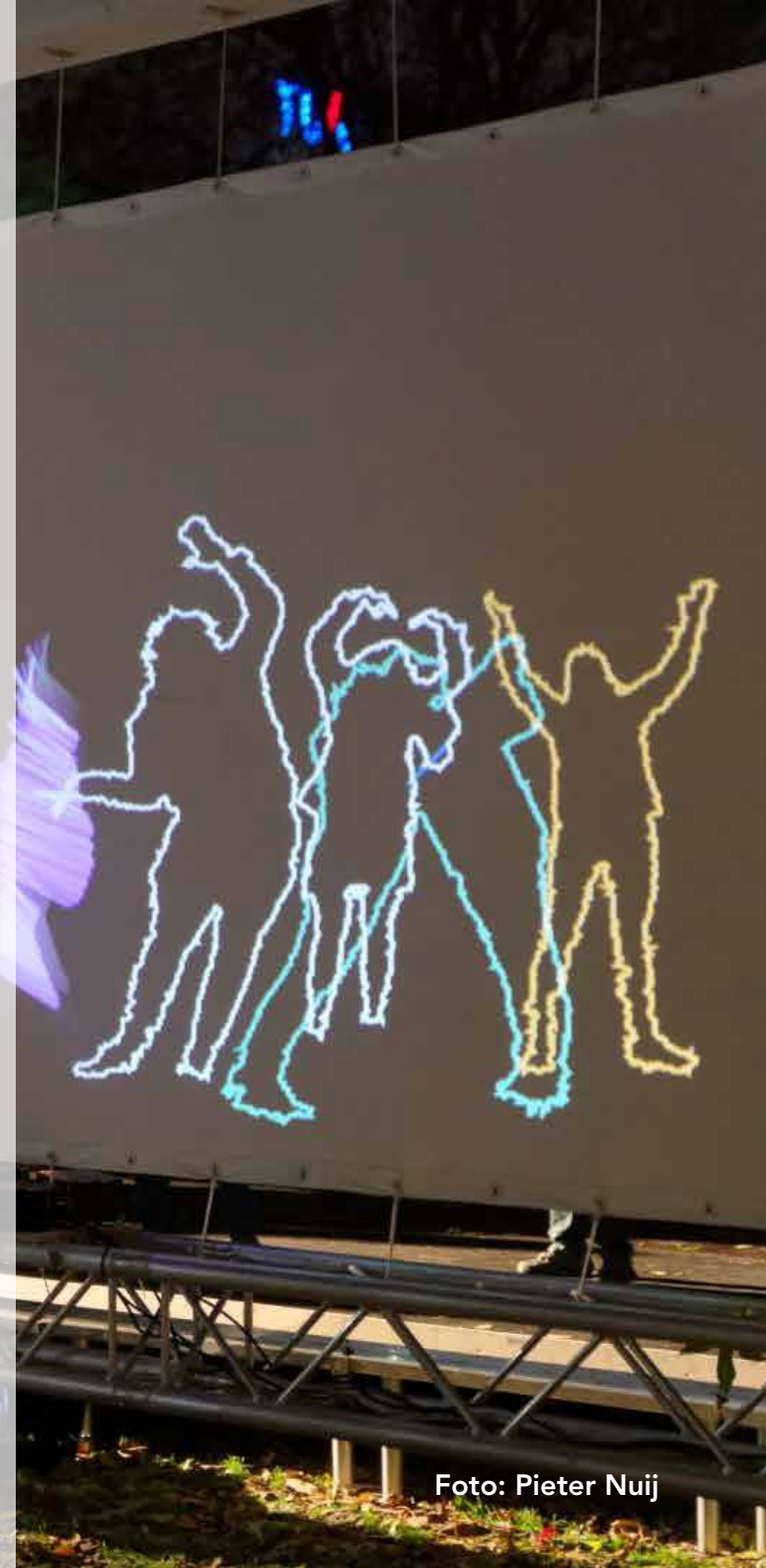
Foto: Pieter Nuij

4) description of the institute.

Intelligent Lighting Institute TU/e, research and innovation

GLOW 2016, science route

The intelligent Lighting Institute TU/e is a research and innovation institute, founded in 2010 to investigate novel intelligent lighting solutions that will become within our reach by the large scale introduction of LED technology, with a special emphasis on how these new solutions might affect people. In addition ILI aims at providing scientific evidence for the claims that go with these novel lighting solutions. The researchers of ILI develop new concepts for interactive lighting solutions, as well as the requisite technology. This requires combining the resources of various disciplines at the university. But the institute also consciously seeks to coordinate activities with the privet and public sectors, which gives a new dimension in the field of lighting innovation. (1)

Every year during the third week of November, the city of Eindhoven is the stage of a light festival. At GLOW 2016, the campus of TU/e hosted the GLOW science route, which contained 16 installations. ILI got the chance to develop several light art installations, linked to their current research.

My place during this internship at ILI was to work in two of the design teams, participating in the realization of two installations at GLOW 2016. In this way I was involved in many different activities of the realisation of these artworks, which is my first work experience in the field of design.

5) goals.

basic goals

At the end of my B2.2 semester, I felt that I was aware of my capabilities as a design student: I know what activities of a project suit me, and which not: I am an analytical designer. Always busy analysing situations and people's behaviour in relation to the world around them. I love to search, observe, puzzle and create a vision that offers a different perspective on topics we deal with every day. And I know I function best in a team: I am the glue between people and their skills.

But these capabilities also come with a less developed side: As I am 'the glue', I bring together people's work and do not create that work by my own. for example: I don't have the required programming skills to get a prototype working in a reasonable time, but I know how to explain to someone else how I would like the prototype to work. Neither do I possess the required visual design skills to create a smashing poster, but I know how to explain how such a picture should look, nor can I edit video's myself to create a convincing concept video. This often feels like a deficiency as a designer.

specific learning goals

I had no clue how far these strengths, mostly 'soft skills', and weaknesses (or less developed skills), mostly 'hard skills' would get me as a designer instead of a design student. Therefore I formulated my learning goals focussing on these two directions: firstly test my soft skills; my main capabilities as a designer, in a professional setting and secondly develop a number of hard skills that will make me feel more equipped as a designer.

These are the goals I formulated at the beginning of the exciting journey of developing the installations.

soft skills.

Professional identity and vision: What are my capabilities and what do I love to do

I believe that this internship fits me perfectly: it is in line with my vision of creating atmospheres and experiences that have an impact on people, and the activities I will take on (mainly conceptualizing and designing the experience) fit my personal interests as a designer. This internship is the perfect activity to deepen my professional identity and check my vision in practice. At the end of my internship I want to have a clear answer on these questions:

> *What are my capabilities as a designer (or person) that I was not aware of on forehand and how does that change my professional identity as a designer?*

> *Does this work field of light design and con ceptual art fit me as a future work field, and why?*

> *What are my shortcomings in working on projects like this, and what do I need to do to improve?*

Design Process: speed up decision making

As I learned during my B2.2 research semester, I have an analytic design approach. I always want to understand the background of a design direction before I am able to design with it. By combining academic literature, my own view and user studies, I usually can bring a design together, but I feel that I take too much time to take decisions. To speed up this process I want to combine this analytical approach with the experimental approach of exploring with the material (or in this case experience) right away from the start. I believe that while doing several design activities in parallel I can take design decisions based on more information, and I will be able to work a lot faster.

Academic literature: where and when to use it

Another insight from my research project was that academic literature makes a process much richer. I want to explore how to use academic literature in a design process. What kind of activities do I have to base on literature, and when do I take the literature only as an inspiration? And are there more situations where I should use academic literature in my process and in what way? When designing the installation 'intermedia' I will find out.

hard skills.

Integrating technology: Use technology myself to create working prototypes.

Designing an atmosphere strongly depends on the use of light and sound. As light and sound are no physical design aspects and therefore cannot be formed physically, they need to be formed digitally. To be able to create and explore atmospheres on my own, I need to learn how to program light and sound.

During my internship I will work together tightly with programmers of light and sound, and I probably will take on a program activity myself. I will have to start learning to program from the beginning and practice myself. The elective Creative Programming will offer me this opportunity in the coding language of Processing. The programming activity I will take on in my internship will probably be in another coding language.

Visual communication and presentation: presentation is key

Communicating concepts, design opportunities or insights is key to work together in a design process, or when presenting my work. The visual communication defines the first impressions of an idea, and therefore has to be clear and well put together. I experienced that I can explain my work quite well, but I don't have the abilities yet to show it without words. I want to develop the following skills in this area: sketching, video editing and graphic design.

Sketching: the elective Sketching the basics, during the second quartile. I will learn how to translate my ideas into a clear image that communicates the idea to myself as well as to anyone else.

Video editing: Within my internship I am going to do several explorations on two light installations. I am going to document them on video and create a process video. During Glow, I am going to document both installations on video and create a convincing impression of the experiences of the two installations.

Graphic design: After my internship, I will create a portfolio containing my projects until then. This probably will be an interactive PDF which will reflect my vision and identity. Creating this portfolio is an opportunity to practice my graphic design skills and present my capabilities as a designer.

8) Description of projects.

During my internship I was involved in different activities within developing and realizing of two art installations. Here I give a short description of the installations. As I took a different role in each design team, I describe my activities per installation.

Intermedia

The interactive installation 'Intermedia' explores the influence of technology as a link in human interactions. It aims to shows three different aspects of social behaviour through digital technology.

The project consists of three double sided projection screens, each flanked by two stages. As a visitor, you take place on one side of the screen, not being able to directly see the visitors on the opposite side. The visitor's silhouette is captured by Kinect cameras and projected on the screen in altered form. When a silhouette encounters someone else from the opposite side, the two silhouettes respond to each other interactively. Soundscapes are added to the atmosphere of the visualisations.

The different visualisations invite totally different social behaviours from people. The aim of the installation is that the Glow visitor will enjoy engaging with Intermedia, and eventually reflect on the different ways technology can influence social interaction. (2).

Foto: Bart van Overbeeke, TU/e GLOW 2016
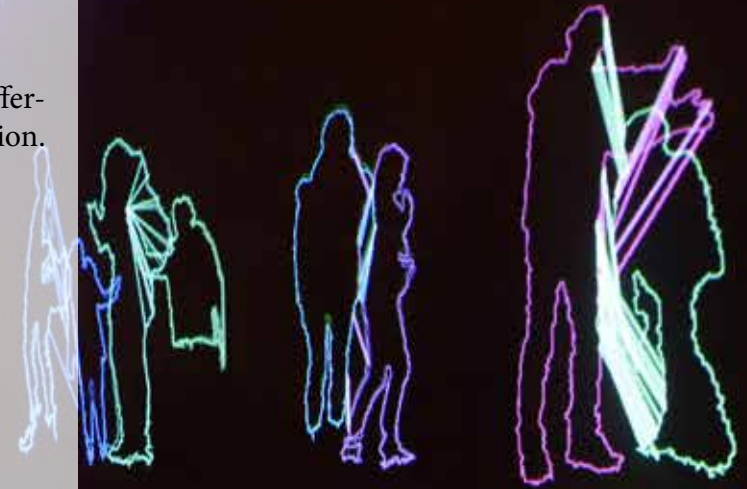
description of projects.

A.R.T

A.R.T is an light art installation that embodies the Attention Restoration Theory (Stephen and Rachel Kaplan, 1995). In our daily lives, people are confronted with an ever growing stream of stimuli that fight for our attention. Our brains get little rest and we lose the ability to focus our attention and deeply engage in an experience. Especially at an event as Glow, the danger of over-stimulation lurks.

But the Attention Restoration Theory (A.R.T) suggests that specific pattern from nature allow us to relax, escape an recharge for new demanding activities.

Therefor A.R.T is a space for calm restoration on 'the Zaale' at the campus of TU/e. In this 5 minute walk, patterns that emerge from the natural movements of the trees along the road are recorded and translated live into modulations of light and sound. In this way, an unfocussed, time stretched atmosphere is created, that is designed to recover, recharge and refresh the visitors of GLOW. (3).

Image: Randi Nuij, ILI 2016

7) activities Intermedia.

Project manager

My main activity was to guide the team of intermedia to a good result. I functioned as the right hand of Philip, project manager of all 5 installations of ILI at GLOW.

In practice this meant that I kept the overview of the design process: keeping in close contact with all team members, provide all individuals with the information they needed to do their jobs. As the team of intermedia existed of 9 students, who were working on this project as an extra-curricular activity during their free hours, this needed a solid coordination. It was my task to practically arrange that people and technology came together at the right moment at the right place.

During August I had to perform this task completely on my own, when Philip was away for four weeks. Also while building up intermedia and during the festival itself I gave the team a lot of guidance.

Conceptualisation

I continued my work on the conceptualisation of intermedia. With the help of the software team, I designed the main concept, as well as the three visualisations and their separate stories.

User tests

Together with Daan, I was involved in the several user tests that took place in the design process. I helped defining the format of the tests and made sure the tests were in line with the project's development needs. But I also took care of some practical aspects of the tests as arranging test persons and room reservations.

Spokesperson

The closer in time we got to the festival, the more press showed interest in our project. To emphasize intermedia in the press, articles and short texts needed to be written and short interviews needed to be done. This role I fulfilled together with Philip. As a final statement I was invited to present the installation during the LED-Talk event. Here Sara and I presented the installation, it's different stories and the theory behind the concept.

Documentation

To close of the project, the installation needs to be documented: all software, all hardware, the concepts and experiences of the visitors. An evaluation on all these topics is included, as well as a concept movie.

activities A.R.T

Visual design

I immediately started my internship with designing the visualisation used for the promotion of the installation. This was the first time I build an image from scratch: from the photography of our first light design to creating new images in Adobe Photoshop.

Programming the first infrastructure

Except for the project management task of intermedia, this activity took the most of my time. While Philip was away, it was my task to start programming the infrastructure of A.R.T. As it was the first time I took on a programming task, this was a great challenge to me. I had to start completely blank, looking for the right direction to search, to find the right software to use. After three weeks of hard work, I finally managed to link a sensor input via an Arduino to a MAX MSP software patch, that generated a DMX signal ues for controlling theatre lamps. This infrastructure served as the starting point from where the rest of the software is build.

Electronics

The physical part of the basic infrastructure contained an anemometer (analogue sensor that measures wind speed) connected to an Arduino. It was my responsibility to get this working. I build a little circuit, learned to soldered it nice and firmly on a prototyping board and connected the hardware to the software.

Light design

I took on a supporting role in the light design of A.R.T. I mainly offered a helping hand, listening ear and critical eye to the design process. I was grateful that I was part of a professional design team and tried to contribute my part as well as I could.

Practical helping hand

This covers all other activities that I did not fit in any of the description above, like designing the floorplan of the installation, connecting lamps while setting up explorations, walking inspection rounds during the festival. In short all these little things gave me a good impression of the large extend of activities that make or break an installation, or experience like the ones we designed.

Image: Randi Nuij, ILI 2016

8) results
Intermedia.

After four months of hard work the two installations were realized. This in itself was the result the two design teams worked towards. But only during the festival we could see if the installations were conceived by the visitors the way we aimed for. Here I will summarize the evaluation of each installation.

The aim of intermedia was to let the visitors experience the influence of technology as a link in social interaction. I think we succeeded in this goal to some extent. The most important insight people had to discover at intermedia, was that the installation was about contact with the silhouettes on the opposite side of the screen. People who got this insight immediately tried to communicate with the other side.

But people who were not aware of this just enjoyed the fact that intermedia is an interactive artwork, where your own body is translated one to one in the installation. In the end I believe that this is the most powerful feature of Intermedia: it invites people to discover and play, while they do not need anything more than just be present.

results A.R.T

A.R.T was all about creating a restorative environment. In this we certainly exceeded. The subtle, well designed transitions of light to sound created a somewhat mysterious, but comfortable and immersive atmosphere. Interviews have done to find out how the visitors experienced glow. They learn us that people understand that nature is emphasized. In the beginning of the walk, they do not pay a lot of attention to the installations: the installation does not grab the attention. But during the walk, and certainly at the end, the installation fills up your attention with an immersive experience. As one of the visitors put it quite stronly: 'it's just like you die, but than in a goo way.'

Foto: Bart van Overbeeke, TU/e GLOW 2016

9) reflections
vision and identity.

The most important learning goal for me was to experience what my capabilities are in a professional setting: To what extend are my capabilities as a design student already suitable for 'the real world' and what do I need to develop to get there. I asked myself the three questioned I stated before again:

What are my capabilities as a designer (or person) that I was not aware of on forehand and how does that change my professional identity as a designer?

I am a team leader (I can say that with confidence now). During this internship, I made sure that all the individuals working on intermedia had everything they needed to do their work. And made sure everything came together in a pleasing experience. I grew in how to achieve this: I know how to be nice, I always find it important that everyone can work in a good atmosphere and simply have fun in the activity they're doing. Being nice definitely helps to get people motivated and enthusiastic. But sometimes this is not enough. I made a beginning in learning how

to be strict. And being strict is needed to achieve the quality we are aiming for. it also means to take responsibility for the quality of the project and dare to say that isn't good enough yet, something someone probably doesn't want to hear. But, whenever this remarks are fair, people are thankful for being strict.

Does this work field of light design and art fit me as a future work field, and why?

Yes: light is something intriguing: it does not only enable us to see, it also influences a lot of biochemical process in our body, which manages our body and mind. Therefore, light is an extremely powerful medium to influence people's experiences or behaviour. Together with sound, these media are the two most important building blocks that create an experience.
Art: Yes, i realized that designing an art installation is way more experimental than designing an object or service for everyday use. This experimental

approach gives the opportunity to make decisions based on intuition, the experience prototypes of the installation gives, the visual appearance etc. instead of a conventional design process, where a lot of decisions need to be substantiated with academic literature or your own user tests. This experimental approach gives me output much faster, and makes it easier to make decisions.

Thereby there is another aspect of art that interests me: Good art triggers a change in perspective, it shows people a different view on the world. With an art installation, you can give people an experience they take with them for the rest of their live. Unlike a product, people cannot just put this aside whenever they like. With an art design you create awareness about a topic, and maybe even an intrinsic change in behaviour.

What are my shortcomings in working on projects like this, and what do I need to do to improve?

During the process it took a long time before I saw the result of my work. As I mainly used my soft skills of being the team leader and conceptual brain of intermedia, the result of my work was that it all came together nicely in the end.

Because my input was not as visible to me as for example the input of the programmers, who see their work growing and functioning better every step by step, I sometimes felt a bit of less importance to the project, as the guys are doing all the 'hard' work. This sometimes costs me a lot of energy. In the end I saw that without my hard work, there probably would not have been an installation of this quality.

Another learning point is that I had a hard time combining the management function of intermedia, with my board activities and other tasks that asked for a long concentration span. Often I felt obligated to answer all questions that were asked me immediately, no matter what I was doing or planning to do. This resulted in fragmented days that felt non-productive, because I did not take the time and rest to sit down and work on bigger tasks. The most important insight here is to set clear priorities, and communicate clearly to the people asking where they can count on.

soft skills.

Soft skills: decision making

Taking a design decision is more a matter of finding the moment you have puzzled enough information together that one direction starts to feel obvious. I learned that getting to this moment takes less time and effort when discussing the different possibilities in the design team. As everyone has a different view, skills, feeling and knowledge, all team members bring their own information to the table. I now see that taking a design decision is not only the work of the designer itself, but strongly depends on the input of the whole team (like the engineer, programmer, etc.)
Thereby, a serious deadline speeds up decision making automatically. When there is just no time to think (or overthink) any longer, because the process just has to keep going, decisions are made more easily.

hard skills.

Integrating technology: Use technology myself to create working prototypes.

Working together with the programmers of Intermedia I got in touch with a lot of programming. I learned how they work, learned about the 'programming mind-set'. Before my internship I only worked with Arduino and processing before (a bit). Now I understand the structure of all our sketches and patches. I now know have seen what is needed from a software point of view to create an experience like Intermedia or ART.

Visual communication and presentation: presentation is key

Video editing: to some extent
Yes I have filmed all explorations and tests. At the beginning of the internship I made a movie of the first user test. This was the first time I used premiere pro. Now I know the basics. So I don't have to start from scratch next time. But as learning how to use Adobe Premier Pro is a hard skill, it takes time to master. And more practice is needed be able to create video's at the quality I wish I could.

Graphic design:
At the beginning, visualisations of the installations had to be made: pictures that would be used on GLOW's website. It was my task to create them. As it was the first time I used Photoshop to create an image, I struggled a lot. Also here, more practice is needed to master the software. (images on p.

main learning outcomes.

Documentation

while documentin the experience I brought together all knowledge of the installation. Therefore I gained a large awareness of all the technology used, hardware as well as software. Two topics I did not have a solid base in before this semester.

Rest

I learned that I shoud be able to set aside the project for a moment, or evening, and take the time to breathe. During this internship I almost became the embodiment of the internship. It was 24/7 on my mind. I believe this is not always a bad thing: you give yourself 200% for the highest end result. But I learned that I have to be careful taking the projects home: you cannot deal with that more than a month, after that it just all gets to much.

10) acknowledge-
ments.

Firstly, I would like to thank Philip Ross for the pleasant and professional coaching. Your enthusiasm in everything you do is remarkable, and made me see the value of the work we did. Your determination to strive for the best end result and the way you led all projects of ILI, next to your own design studio and a family of two young children amazed me. I sometimes felt a bit uncomfortable asking you stuff twice, to not take more of your time than needed. You showed me what it is like to be a lighting designer, which was the goal of my internship.

Secondly, the team of intermedia. Especially Zeno and Joren for being such good friends and all the hard work you did together. I now sometimes miss the evenings in the lightlab, programming the visualisations and taking care of you. Willem for the contribution of the sound sketches. But also for the conversations on designing installations. It was helpful and comforting to know that there was someone else in the team to share a similar vision with. Sara for being an extra set of eyes and ears from a more distant perspective, this helped to keep me sharp. Also, your female company was always welcome. Tom for your expertise on software and hardware.

Your contributions seemed to be effortless for you, but of high value to the project. Daan for developing the user tests, and finally the hardware team: Arjen, Camiel and Niek, for your practical input, your humour and your cooperation. You made me learn how to be strict.

Another special tanks to Indre Kalinauskaite. As the security of Laplace sometimes called us 'the twins' you became an older GLOW-sister to me, telling about your work and view on art, music, design, science and society. Thanks a lot for taking me by the hand and sharing your experiences, asking the right questions for me to think about, and of course the lovely girls talks in between the serious work.

Thanks Joep, for the lovely collaboration. Your modesty and calmness is a contribution to every team.

Lastly, I would like to thank my board members of ESMG Quadrivium, for letting me go for two weeks just before the first concert of the season. And of course my orchestra committee for taking over my tasks during the build-up week of GLOW and the festival evenings.

11) references.

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2.)   Nuij, R., & Ross, P. (n.d.). 26. Intermedia. Retrieved December 19, 2016, from http://www.glo-weindhoven.nl/nl/glow-projecten/glow-next/inter-media

3.)   Kalinauskaite, I., & Ross, P. (n.d.). 23. A.R.T. Retrieved December 19, 2016, from http://www.glo-weindhoven.nl/nl/glow-projecten/glow-next/a-r-t

12) appendix

Integrating technology: Use technology myself to create working prototypes.

Designing an atmosphere strongly depends on the use of light and sound. As light and sound are no physical design aspects and therefore cannot be formed physically, they need to be formed digitally. To be able to create and explore atmospheres on my own, I need to learn how to program light and sound.
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-       Does this work field of light design and conceptual art fit me as a future work field, and why?
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Designing business processes: how to create a life on its own

During my studies so far, I only learned the theory behind value creation, in the assignment of Designing tangible business models. But I never came across an opportunity to put this knowledge into practice. During my internship I will take on the task to make the installation of intermedia a traveling installation. Another activity where I will gain experience in the area of business processes will be during my board year for the student association ESMG Quardrivium. As commissioner of Ensuite, the symphony orchestra of the association, it will be my responsibility to organize the concerts of this orchestra. To make these concerts successful, I will apply the theory of value creation in practice.